1 RANULF ROAD
LONDON, NW2 2BT

BASEMENT IMPACT ASSESSMENT

UM/8776-BIA-Version 1.1 December 2014

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1.0 INTRODUCTION

The information contained within this Basement Impact Assessment (BIA) has been produced to cover the information required within a BIA as set out by Camden Planning Guidance - Basements and Lightwells (CPG4) including Camden Development Policies DP27 - Basements and Lightwells.

The following screening stage was reviewed to see the effect of the basement on the surrounding area and the following Figures 1, 2 and 3 outline the works within this BIA report.

Figure 1-Subterranean (ground water) screening chart

Q 1a: Is the site located directly above an aquifer?	No	See Content 6
Q 1b: Will the proposed basement extend beneath the water table surface?	No	See Content 5
Q 2: Is the site within 100m of a watercourse, well (used/disused) or potential spring line?	No	See Content 6
Q 3: Is the site within the catchment of the pond chains on Hampstead Heath?	No	See Content 5
Q 4: Will the proposed basement development result in a change in the proportion of hard surfaced/paved areas?	No	See Content 8
Q 5: As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	No	See Content 5, 6
Q6: Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just pond chains on Hampstead Heath) or spring line.	No	See Content 5

Figure 2 - Slope stability screening chart

Q 1: Does the existing site include slopes, natural or manmade, greater than 7° ? (approximately 1 in 8)	No	See Content 7
Q 2: Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 7° ? (approximately 1 in 8)	No	See Content 7
Q 3: Does the development neighbouring land, including railway cuttings and the like, with a slope greater than 7° ? (approximately 1 in 8)	No	See Content 7
Q 4: Is the site within a wider hillside setting in which the general slope is greater than 7° ? (approximately 1 in 8)	No	See Content 7
Q 5: Is the London Clay the shallowest strata at the site?	Yes	See Content 4
Q 6: Will any tree/s be felled as part of the proposed development and/or are any works proposed within any tree zones where trees are to be retained?	No	See Architectural Report
Q 7: Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?	No	
Q 8: Is the site within 100m of a watercourse or a potential spring line?	No	See Content 5
Q 9: Is the site within an area of previously worked ground?	No	See Content 7
Q 10: Is the site within an aquifer?. If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?	No	See Content 6, 7
Q 11: Is the site within 50m of the Hampstead Heath ponds?	No	See Content 5
Q 12: Is the site within 5m of a highway or pedestrian right of way?	Yes	See Content 7
Q 13: Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	No	See Content 3
Q 14: Is the site over (or with the exclusion zone of) any tunnels e.g. railway lines?	No	

Figure 3 - Surface flow and flooding screening chart

Q 1: Is the site within the catchment of the ponds on Hampstead Heath	No	See Content 5
Q 2: As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	No	See Content 5, 8
Q 3: Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	No	See Content 5, 8
Q 4: Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?	No	See Content 5, 6
Q 5: Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No	See Content 5, 6
Q 6: Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is below the static water level of nearby surface water feature?	Yes	See Content 6

This Basement Impact Assessment has been prepared by Taylor Whalley Spyra as requested by Daniel Smith Architects as part of the planning application for the existing building and relates to the proposed increased depth of the existing basement storage area and creation of a new extension at the rear and side of the property.

The purpose of this Basement Impact Assessment document is to outline the key points for the method of safe excavation and construction for the increased basement depth and the front lightwell. It also sets out how the neighbouring buildings will be protected as well as local environment and amenity with details to clarify the design, ground stability and its feasibility for proposed construction.

The topics covered within the appendices are Method of Construction, Structural Stability & Movement Assessment, Drainage & Surface Water Flow, Flood Risk, Temporary Works, during construction.

The Project will be managed by a competent professional who will oversee the nominated building contractor and will liaise with London Borough of Camden and the local residents to ensure that the details within the BIA are established prior to the commencement of construction.

Taylor Whalley Spyra are retained as consulting civil and structural engineers for the project. The company was formed in 1955 and is a private company wholly owned by the directors. Our expertise covers all building types and we have particular experience of working in Central London locations where sites have tight urban constraints.

2.0 THE EXISTING SITE

The existing building is detached house and consists of a 2.3m deep stepped basement under the main house with ground floor and first floor and timber trussed roof. The rear of the property has a lower ground floor set 2.0m below pavement level. The rear of the lower ground floor backs onto the rear garden level which again is 1m below the pavement in Ranulf Road. (see Appendix E).

3.0 THE PROPOSED WORKS

The works involve increasing the height of the existing basement by excavating 1.5m which will involve minor underpinning 1m deep of the existing side wall and internal walls and a reduced dig of 1.5m of soil within the existing basement. At the rear of the property a new extension is to be constructed and the proposal is to excavate some of the rear garden area down to the new basement slab level and to install a foundation to follow the line of the extension..

The underpinning will be installed in 1m wide bays to the depth of the new basement slab- to the side wall (See Appendix E)

4.0 SOIL INVESTIGATION

The local geology of the area is well known as shown on the Geological maps and British Geological Society borehole records for the area, which confirm the geology of the area is made ground over London Clay (see Appendix C).

Trial holes have been undertaken on site at the front and to the rear to confirm existing foundations. The results show made ground is up to 600mm deep and this overlies stiff brown/yellow London Clay.

5.0 DRAINAGE & SURFACE WATER FLOW APPRAISAL

Ground water & surface water flow will not be affected by the increased depth in basement or the rearfront lightwell as the underpinning/foundations will not extend significantly below the existing building foundations (see Appendix D).

Trial holes undertaken have not encountered any ground water and were dry whilst being excavated.

There are no signs of dampness within the existing basement or any signs of ground water penetration and the garden area shows no signs of ground water or areas of water ponding.

The existing foul and surface water will remain unchanged from the existing site condition. A new small pump chamber will be installed to service the basement. This will provide some storage and pump to high level to gravity drain within the existing drainage pipe system.

The existing drainage system on site is gravity fall from the rear garden to the main sewer in Ranulf Road and this will remain unchanged.

There will not be any requirement for dewatering on site as no ground water has been encountered during trial holes and the site conditions are London Clay.

6.0 GROUND WATER AND FLOOD RISK APPRAISAL

A review of the London Borough of Camden - Camden geological, hydrogeological and hydrological study maps confirms the site is not within the catchment of the pond chains on Hampstead Heath or within 100m of a Camden Surface Water Feature (see Appendix E).

Ground water flow will not be affected by the proposed basement reduced dig as the made ground is where any anticipated ground water would likely occur and as the existing surrounding building foundations extend into the London Clay, which has the effect of restricting ground water flow, any migration of water within the clay is negligible.

Ranulf Road is not a street at risk of surface water flooding. It is noted that within Camden Flood Risk Management Strategy that works by Thames Water have been undertaken to alleviate flood risks within this area.

7.0 THE STRUCTURAL STABILITY AND SEQUENCE OF WORKS

Proposed Sequence of Works

1. A sequence of 1.0m wide bays is to be agreed with engineer and party wall surveyors to allow sequenced excavation prior to start of works on site.
2. All brickwork walls of the main house are to be underpinned with stainless steel dowel bars between.
3. All underpinning is to be undertaken from inside the property and underpins backfilled and compacted.
4. Lower ground 1m blow existing level, provide propping to underpins and existing side wall and excavate to the bottom of existing underpins level.
5. Once the basement slab is completed the other works will commence.
6. When all bays are installed remove remainder of spoil and install new lightwell lower ground floor RC slab.
7. No adjoining underpinning bays are to be excavated until concrete has achieved its design strength confirmed by cube strength tests, minimum 72 hours concrete curing.
8. No underpinning bays are to be excavated within 3m of each other.

The two properties either side of number 1 Ranulf Road will fall within The Party Wall Act and as such it will be necessary to undertake condition surveys of both properties.

Prior to works commencing a photographic dilapidation record will be taken of all adjacent highways, footpaths and associated infrastructure with London Borough of Camden being notified if they wish to attend. A copy of these photographs will be forwarded to London Borough of Camden for their agreement and records.

The design of the increased basement depth and lightwell walls is being undertaken to minimise any structural disturbance to the adjoining properties or infrastructure. It is envisaged that any structural disturbance to them will be negligible.

Excavation of the works will be ensured so that all works are carried out safely and in such a manner that it will not inconvenience pedestrians or other road users and with a positive consideration to the needs of the local residents, site personnel and visitors as well as the general public.

A review of the slope angle map from Camden Geological, Hydrogeological and Hydrological Study confirms the site and adjacent roads are much less that the 7º slope and is not within any area of worked ground (see Appendix E).

8.0 CONCLUSIONS

The proposed works are only to increase the depth of the existing basement area and to add side and rear extension to rear garden, which currently is the full depth and width of the main house, with the installation of shallow 1m deep concrete underpinning. This is a small construction and the sequencing of the installation of the RC walls and brick walls to the basement slab will form a rigid structure.

The excavation for the basement wills not affect the depth of any adjoining building foundation, so adjoining buildings' structurally stability will not be affected by the works.

The selection of the main contractor will be based on having previous experience constructing similar projects and a requirement to provide programmes and method statements detailing the final sequence of construction prior to carrying out works on site.

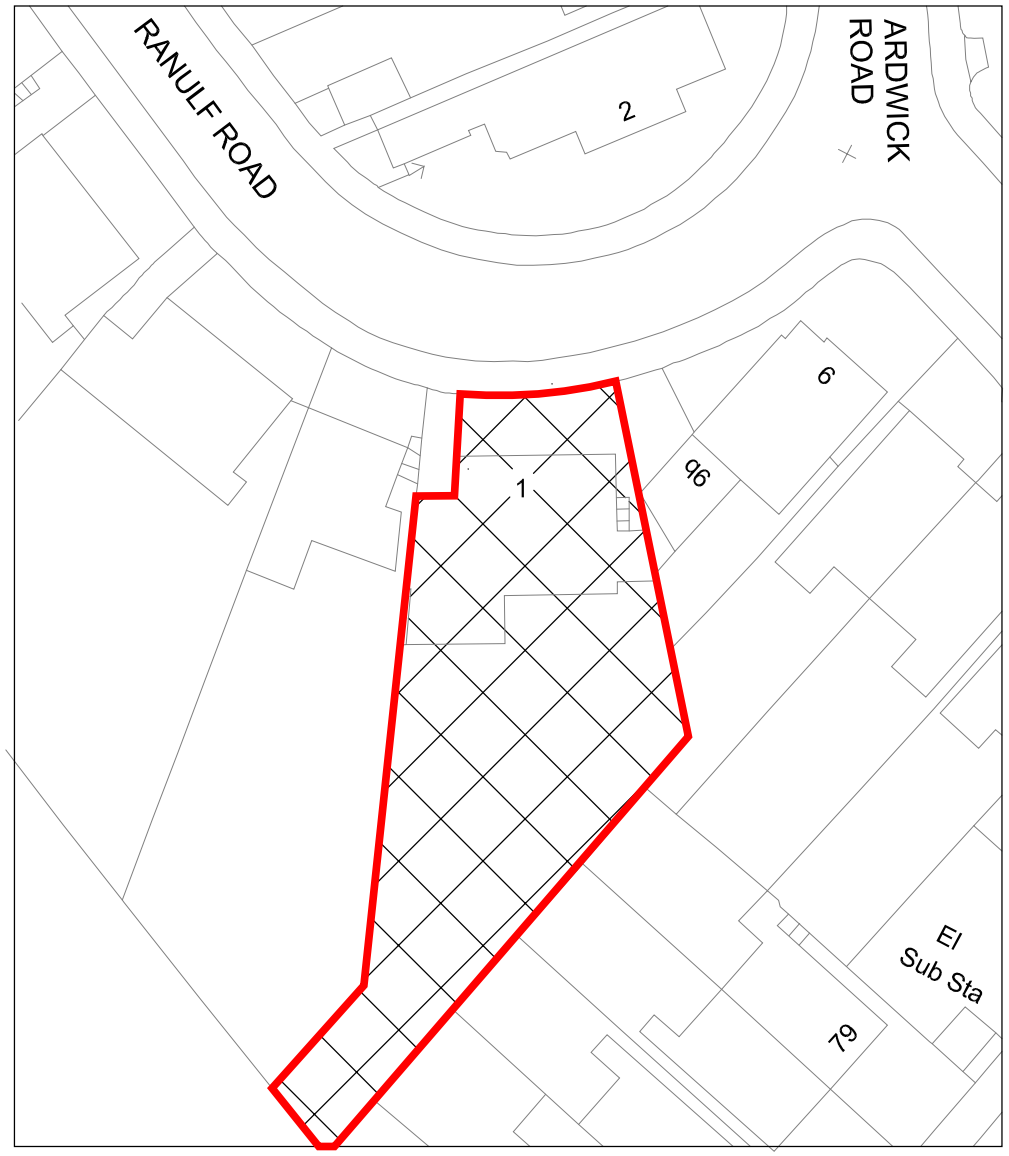
The project as currently envisaged is feasible in terms of the general construction process, structural stability, long term integrity of adjacent buildings and the existing property and surrounding infrastructure.

There is no increase in foul water or surface water from the site or any change in the subterranean ground water flow.

The hard and soft permeable areas will remain similar to the existing as the front garden is gravel on a concrete hard standing, so the existing flow and infiltration volumes will remain unchanged.

Appendix A

8776_PA01 - Site Location Plan indicating Adjoining Properties



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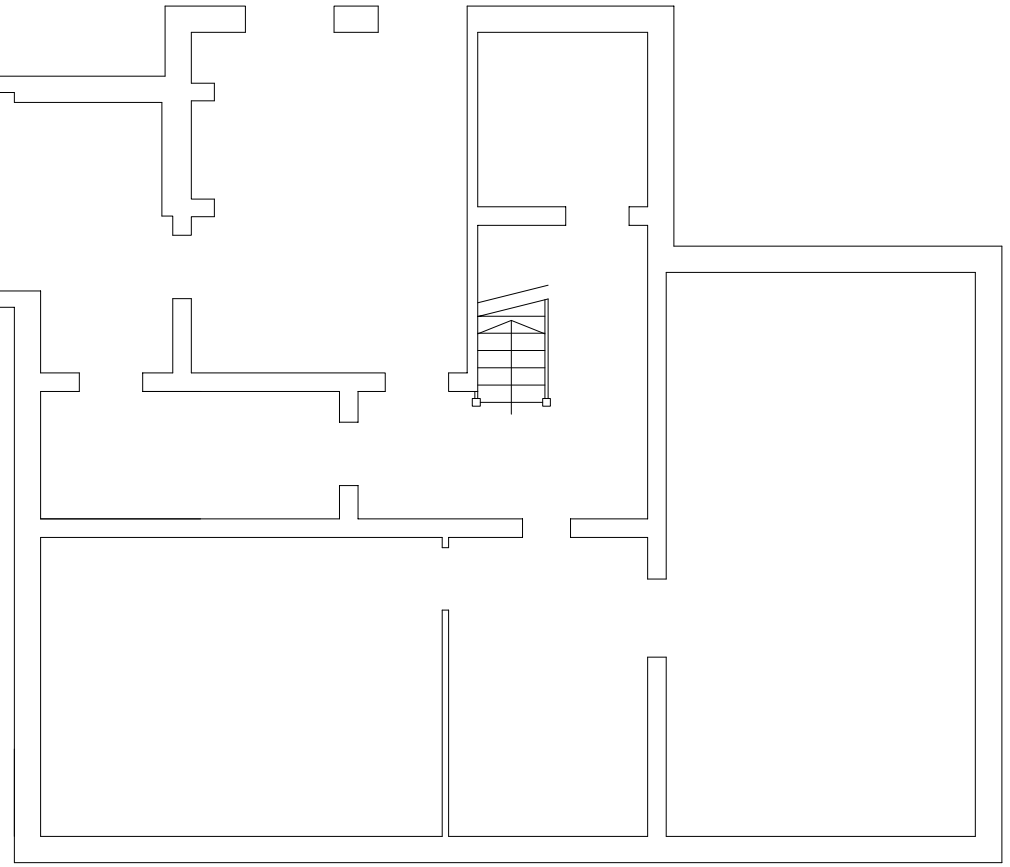
Contract	Title	Scale	Date	Drawn
1 RANULF ROAD, NW2 2BT, LONDON	SITE LOCATION PLAN AND ADJOINING PROPERTIES	NTS	09.12.14	AK
		Job No. 8776	Drawing No. PA01	Rev. -

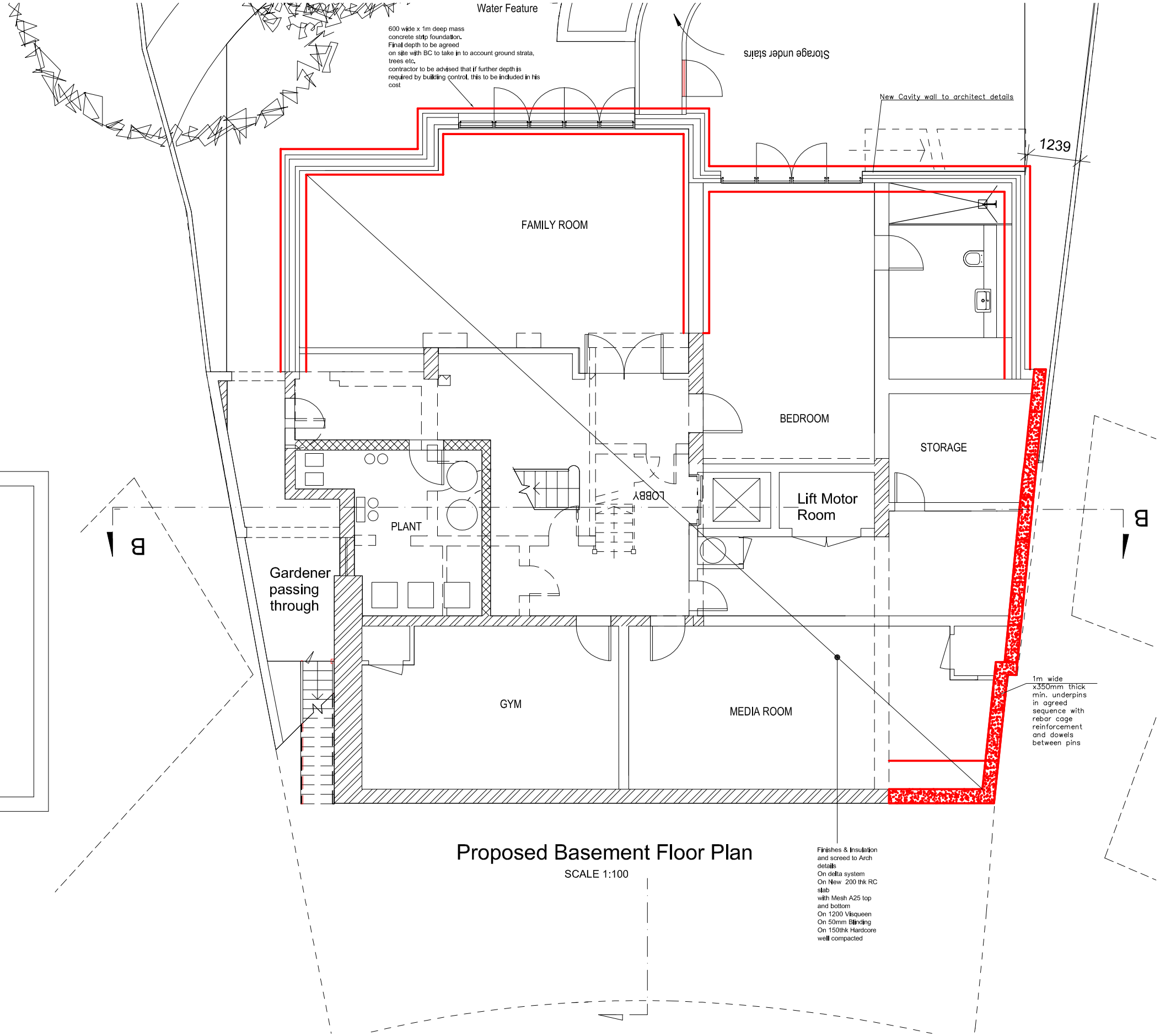
Appendix B

8776_PA02 - Existing & Proposed Basement Layouts



Existing Basement Floor Plan

SCALE 1:100



Proposed Basement Floor Plan

SCALE 1:100

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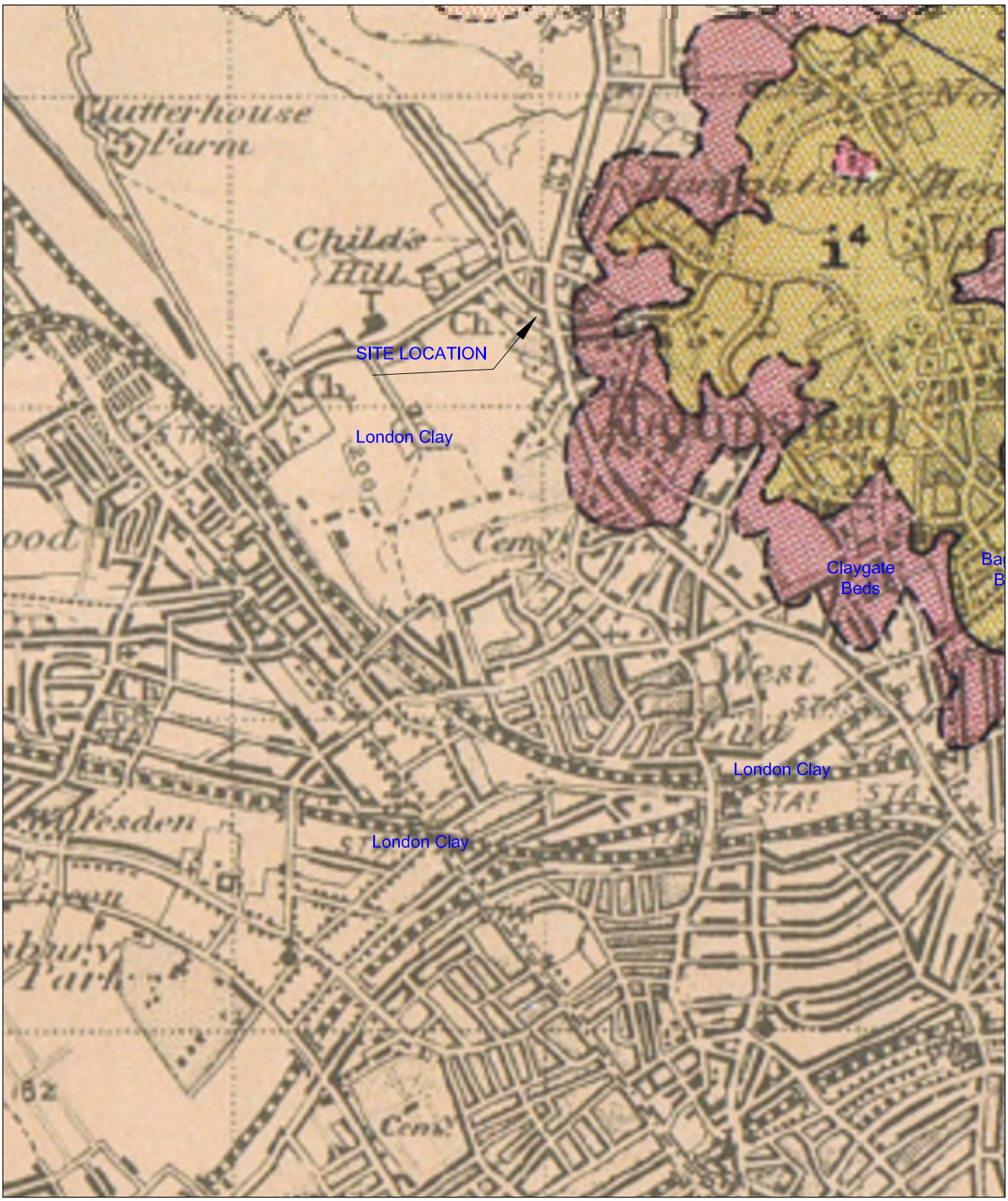
Contract	Title	Scale	Date	Drawn
1 RANULF ROAD, LONDON, NW2	PROPOSED AND EXISTING BASEMENT PLAN	1:100	09.12.14	AK
		Job No. 8776	Drawing No. PA02	Rev. -

Appendix C

8776_PA03 - Geological Map of Local Area



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1 RANULF ROAD, LONDON, NW2 2BT

GEOLOGICAL MAP OF LOCAL AREA

Drawing No. 8776_PA03

Scales NTS

Date 31.01.14

Appendix D

8776_PA04 - Proposed Sections A-A &B-B

1. This Drawing to be read in conjunction with all other Engineers, Architects and Specialists drawings and specifications.
2. No dimensions are to be scaled from this drawing.
3. No deviation may be made from the details shown on this drawing without prior agreement of the Engineers.
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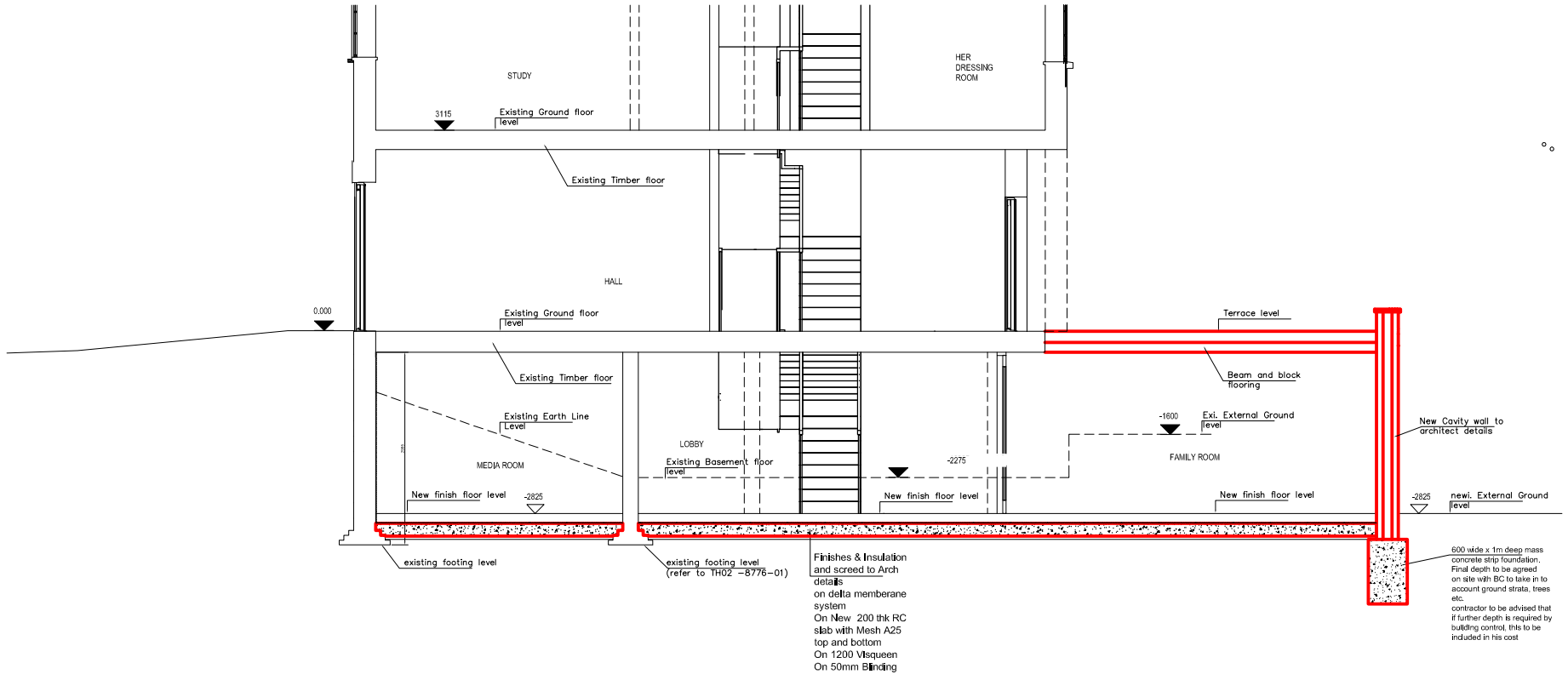
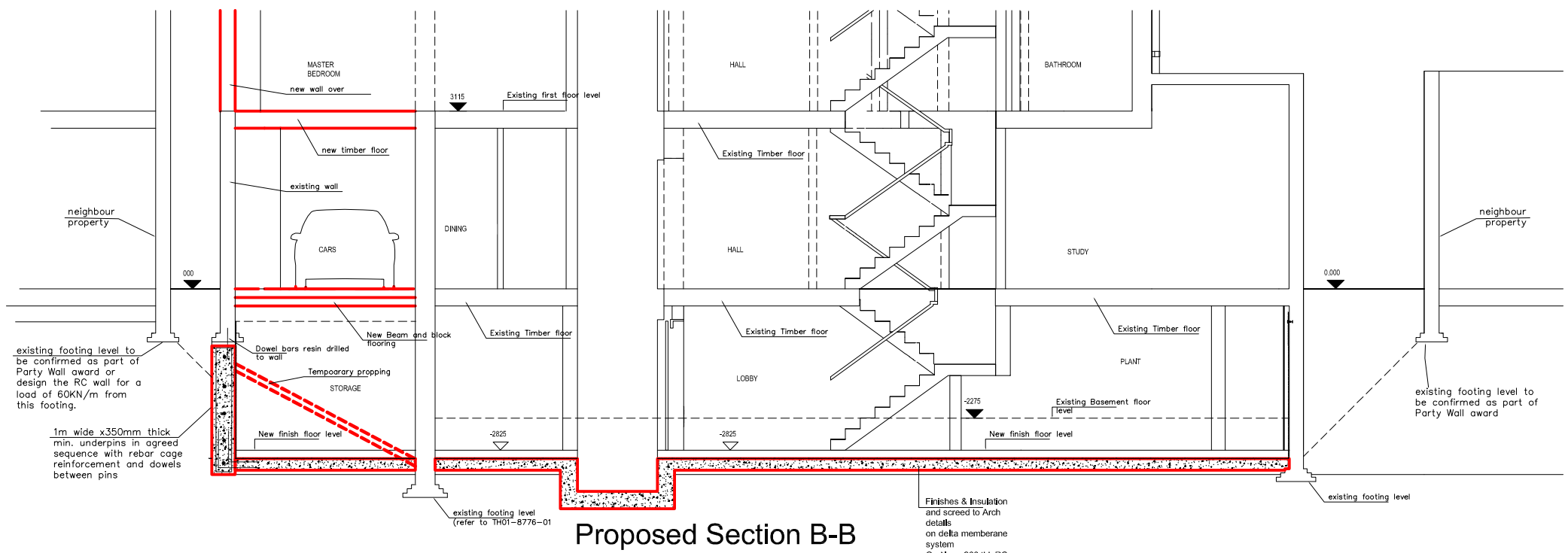


Proposed Section A-A

SCALE 1:50



Proposed Section B-B

SCALE 1:50

Ref.	Revisions	By	Date

1 Ranulf Road

PLANNING

Proposed Cross sections A-A&B-B

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Scale at A1	Date	Drawn By	
1:50	10.12.14	AK	

Project No.	Drg No.	Rev.
8776	PA04	-

Appendix E

8776_PA05 – Camden Geological, Hydrogeological and Hydrological Study Extracts

1 RANULF ROAD

LONDON, NW2 2BT

CAMDEN GEOLOGICAL, HYDROGEOLOCICAL AND HYDROLOGICAL STUDY EXTRACTS

FIGURES 11 - WATERCOURSES
FIGURES 12 – CAMDEN SURFACE WATER FEATURES
FIGURES 14 – HAMPSTEAD HEATH SURFACE WATER CATCHMENTS AND DRAINAGE
FIGURES 15 – FLOOD MAP
FIGURES 16 – SLOPE ANGLE MAP

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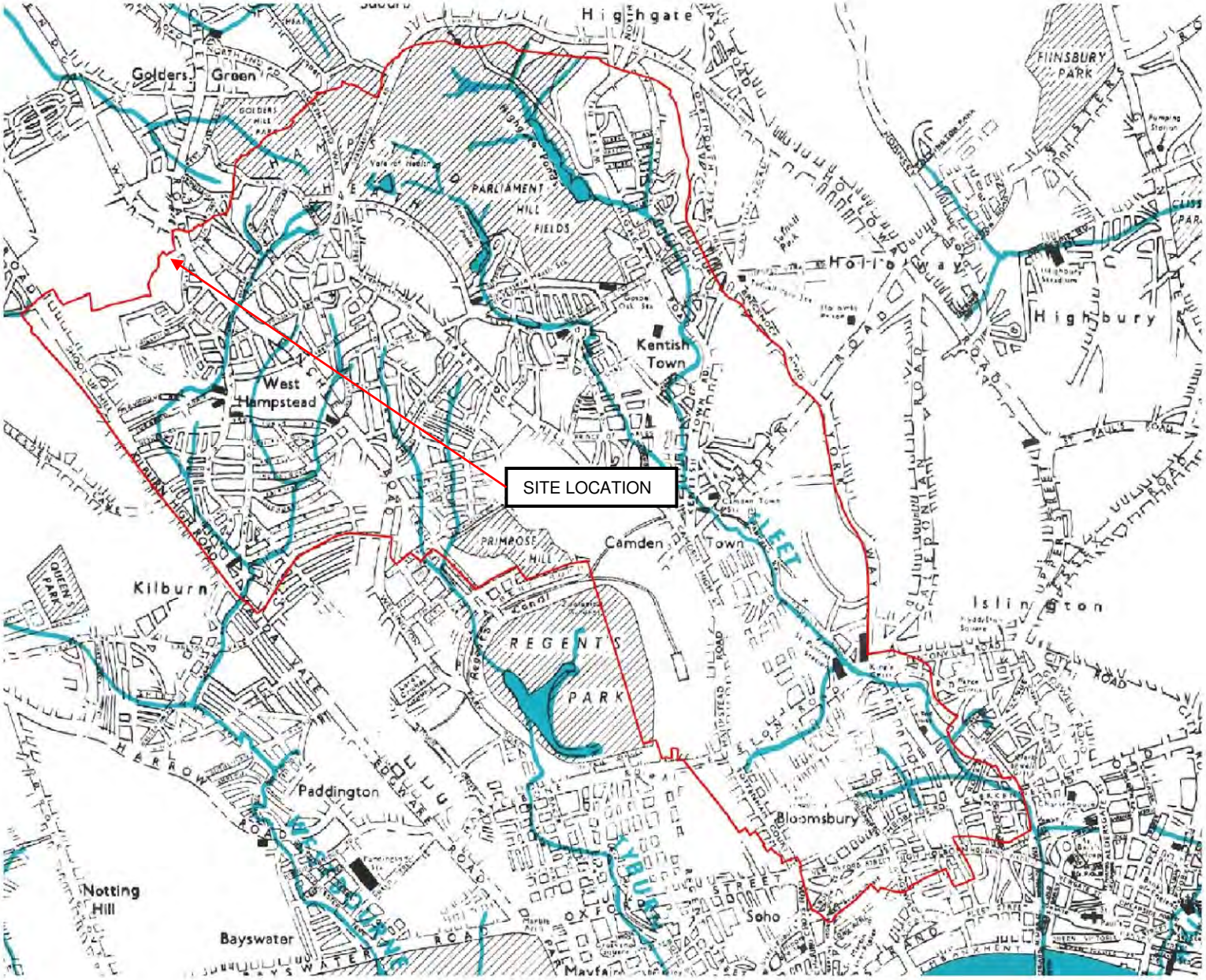
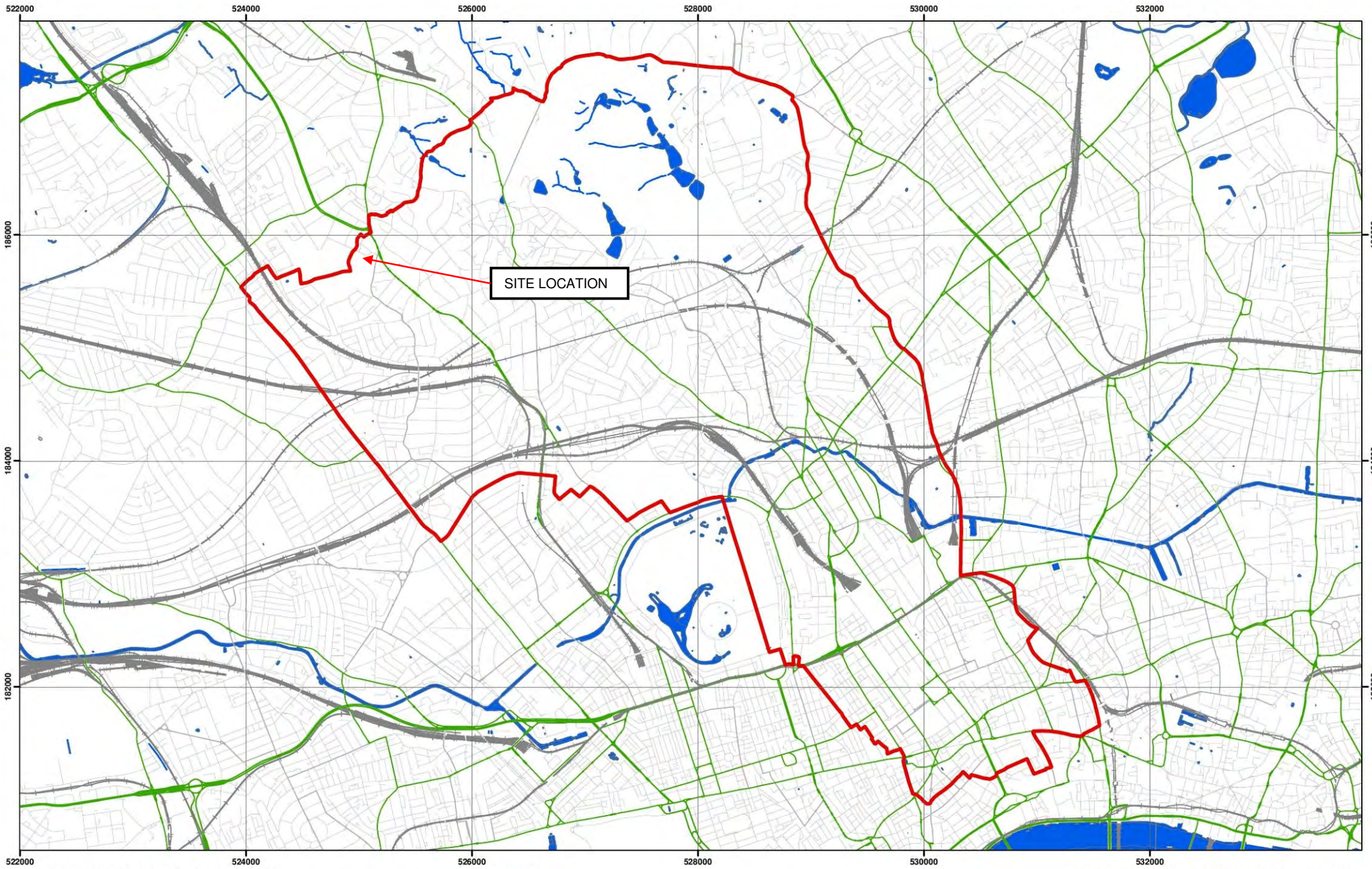


Source – Barton, Lost Rivers of London

Camden Geological, Hydrogeological and Hydrological Study
Watercourses

213923

FIGURE **11**



Data Source: London Borough of Camden, 2010

N

Scale at A3: 1:30,000

Coordinate System:
British National Grid
GCS_OSGB_1936

0 0.5 1 2 3
Kilometers

Legend

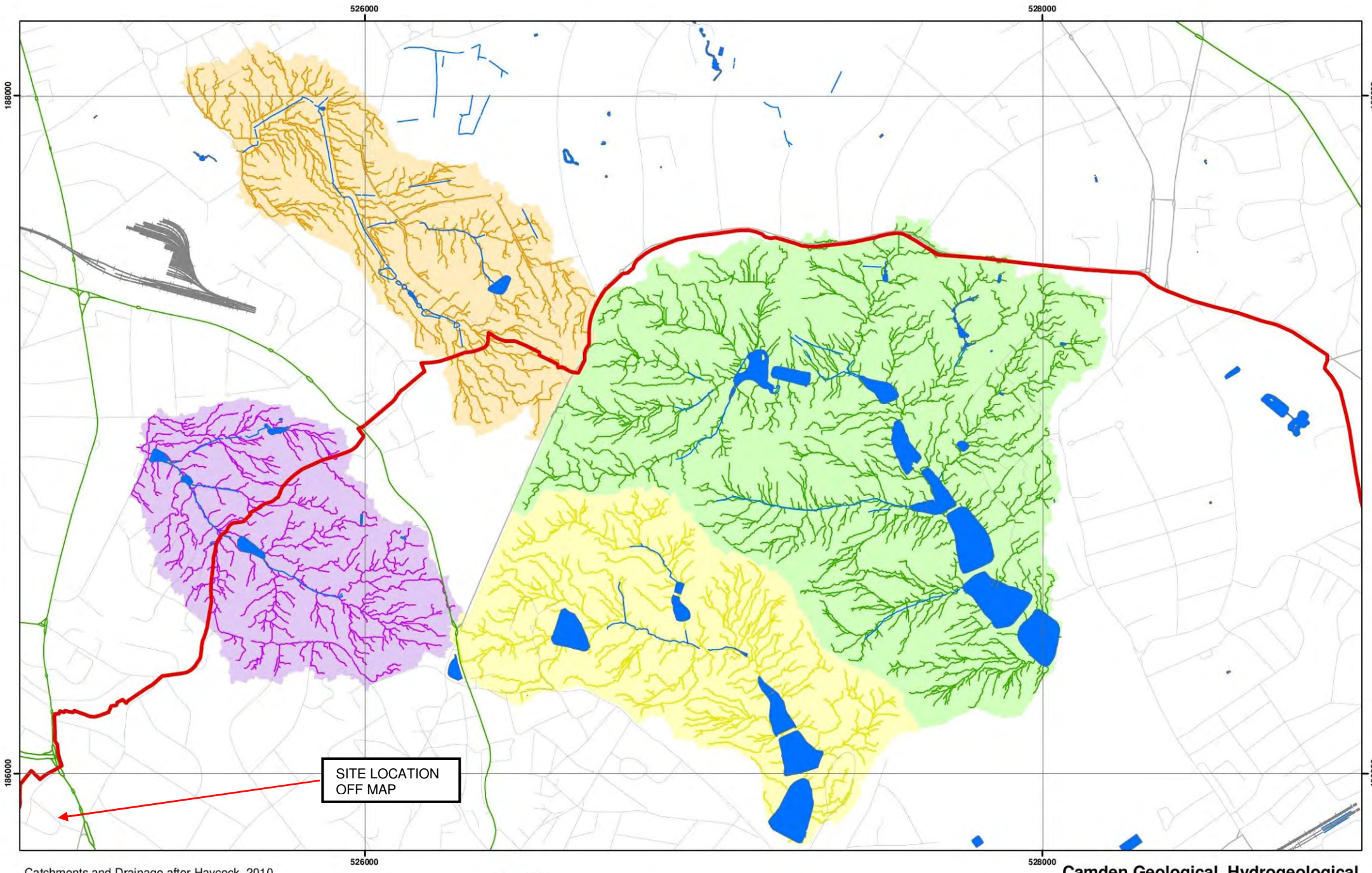
- London Borough of Camden
- Surface water
- Railway Lines
- A Roads

Camden Geological, Hydrogeological and Hydrological Study

Camden Surface Water Features

213923

FIGURE **12**



Catchments and Drainage after Haycock, 2010

N

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Coordinate System:
British National Grid
GCS_OSGB_1936

0 0.125 0.25 0.5 0.75 1
Kilometers

Legend

- London Borough of Camden
- Railway Lines
- A Roads
- Surface Water
- Highgate Chain Catchment
- Golders Hill Chain Catchment
- Hampstead Chain Catchment
- Hampstead Heath Extension Chain Catchment

Camden Geological, Hydrogeological and Hydrological Study

Hampstead Heath Surface Water Catchments and Drainage

213923 FIGURE **14**

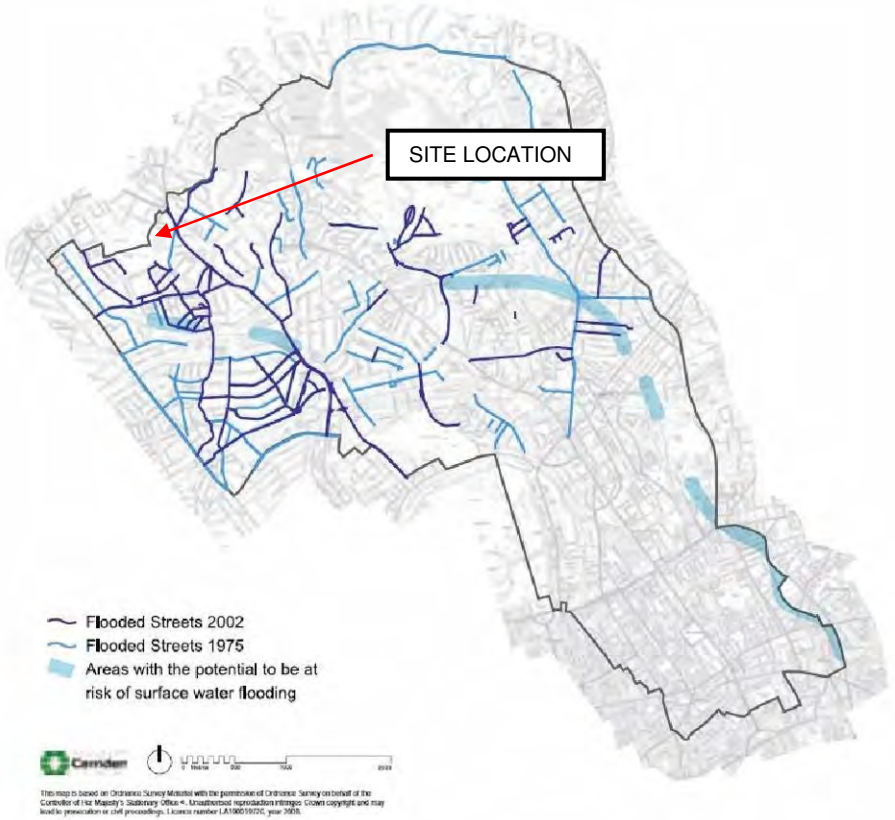
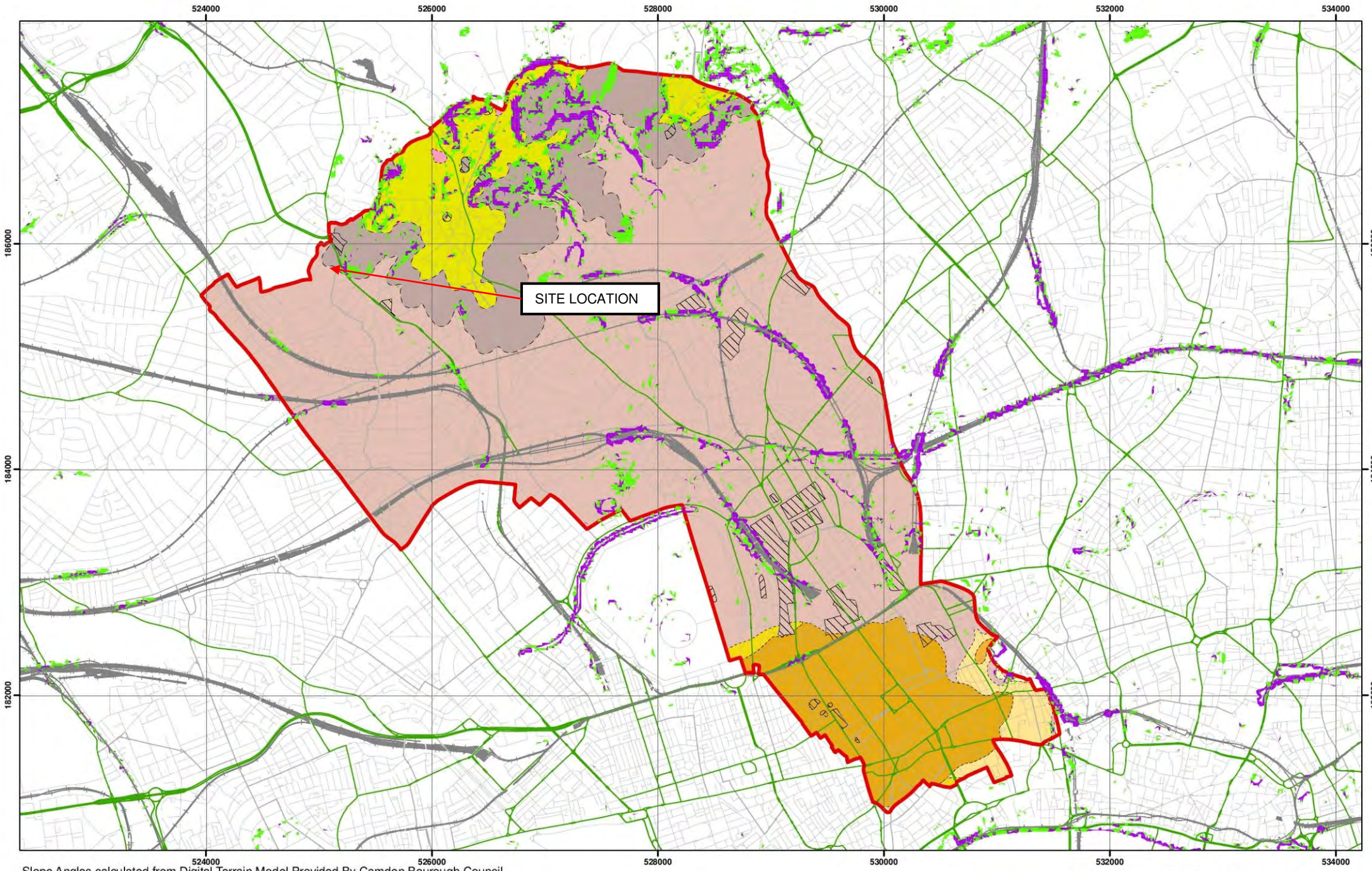


Figure 5 from Core Strategy, London Borough of Camden

Camden Geological, Hydrogeological and Hydrological Study
Flood Map

213923 FIGURE **15**



Slope Angles calculated from Digital Terrain Model Provided By Camden Bourough Council

N

Scale at A3: 1:30,000

1:10,000 BGS Mapping
Coordinate System:
British National Grid
GCS_OSGB_1936

0 0.5 1 2 3
Kilometers

Legend

Slope
- 0° - 7°
- 7° - 10°
- > 10°

London Borough of Camden
Railway Lines
A Roads

BGS 1:10K Artificial Ground
- MADE GROUND
- WORKED GROUND

BGS 1:10K Drift Geology
- ALLUVIUM
- HACKNEY GRAVEL FORMATION
- LANGLEY SILT FORMATION
- LYNCH HILL GRAVEL FORMATION
- STANMORE GRAVEL FORMATION

BGS 1:10K Solid Geology
- BAGSHOT FORMATION
- CLAYGATE MEMBER
- LAMBETH GROUP
- LONDON CLAY FORMATION

NB. Geological boundaries are largely indicative based on available geological mapping data

Camden Geological, Hydrogeological and Hydrological Study

Slope Angle Map

213923

FIGURE **16**

Appendix F

8776_TH01 – Trial Holes and Details

TRIAL PIT LOCATION
The purpose of the Trial Holes is to excavate to locate depth and position of existing foundations.

Include for any breaking out and full reinstatement upon completion and inspection by the engineer.

Method of forming the holes should be assessed by the contractor at tender stage and any aasumtions listed when returning the price.

Allowance is to be made for all health and safety measures necessary to ensure safety of personnel and stability of the structures/ground.

Method statements should be issued for approval of the SO prior to commencement.

The size of the trial hole should be the minimum required for inspection assume 0.75m square.

Allow for leaving all clean and tidy upon completion with all surplus material to be disposed of off site in an approved manner.

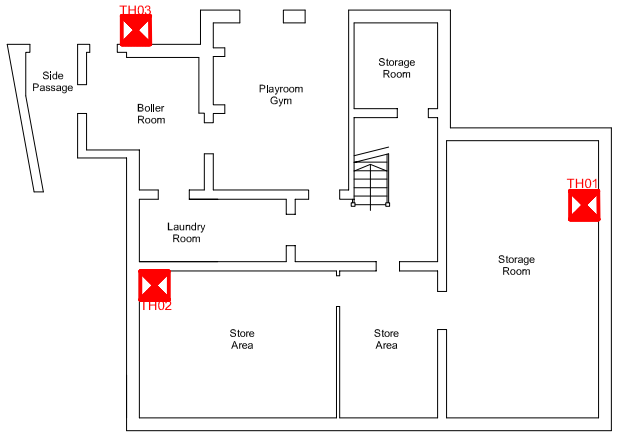
The contractor should take all reasonable steps to prevent damage to the existing services, his operatives and the general public.

Safety barriers are to be provided to prevent public access to the area of the works

The contractor shall provide all necessary plant to allow the excavations to be carried out safely.

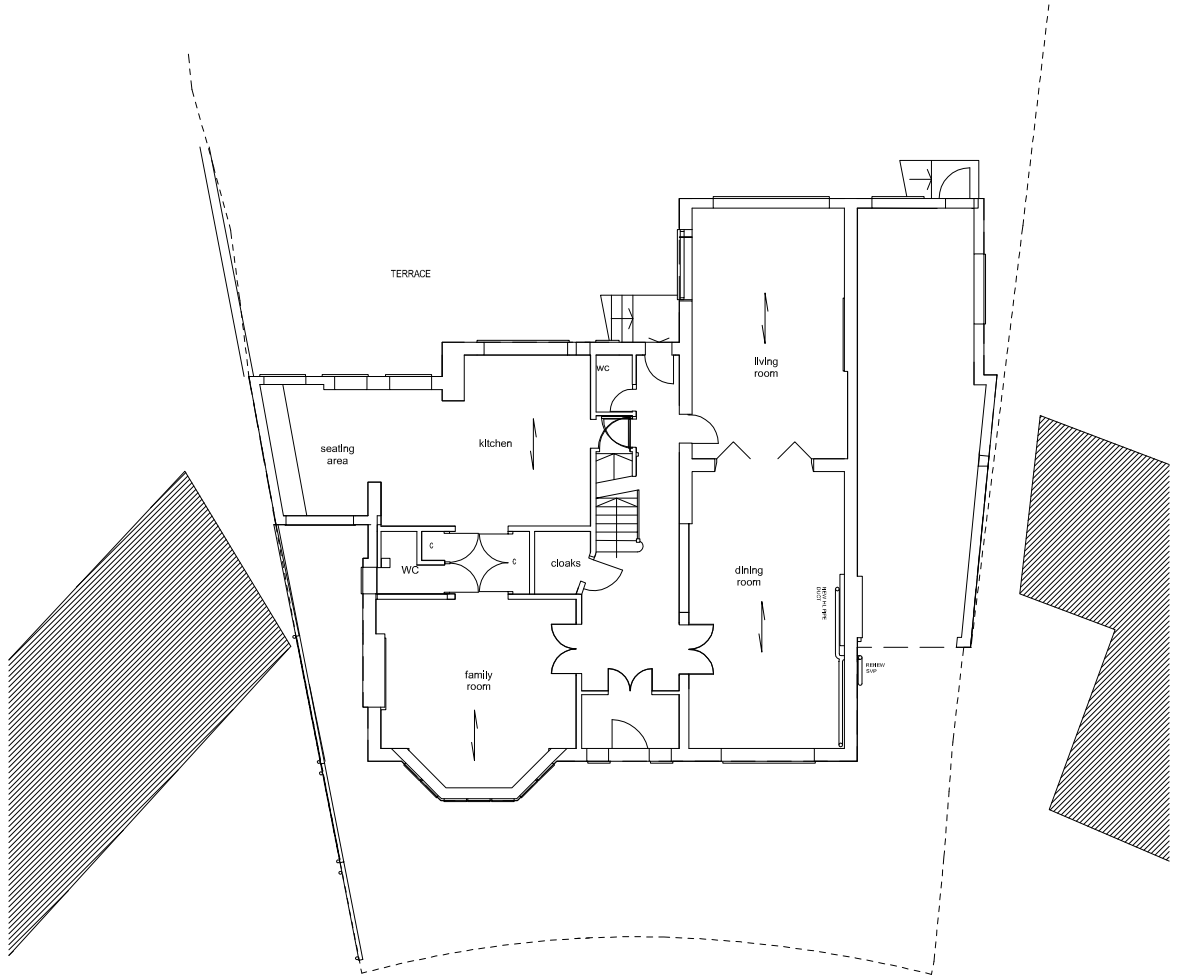
Where mechanical diggers are used the Contractor shall allow for suitably qualified personnel to prevent damage to existing services and operatives.

After completion of the trenches they are to be back filled with excavated materials.



Existing Basement Floor Plan
SCALE 1:100

Timber Joist
230mm x45mm @ 380 C/C



Existing Ground Floor Plan
SCALE 1:100

1. This Drawing to be read in conjunction with all other Engineers, Architects and Specialists drawings and specifications.
2. No dimensions are to be scaled from this drawing.
3. No deviation may be made from the details shown on this drawing without prior agreement of the Engineers.
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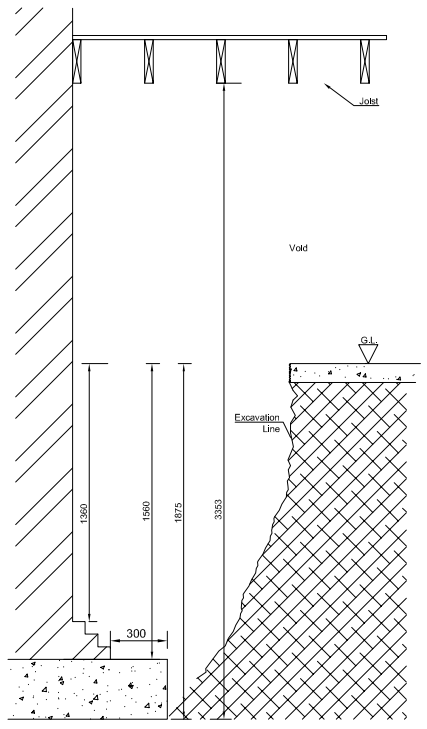
TH01

TH02

TH03 External



TH01
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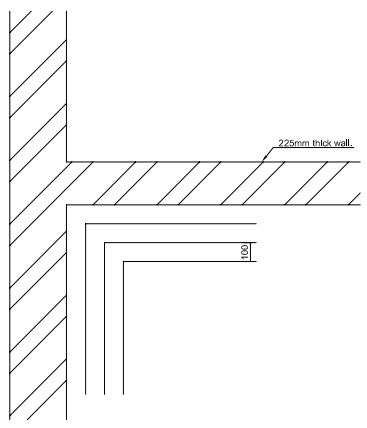
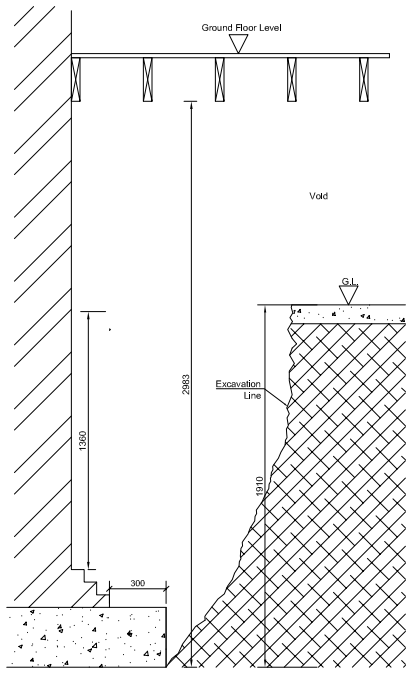
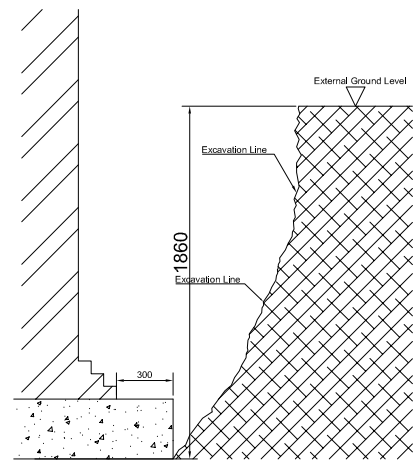




TH02
SCALE 1:20



External TH03
SCALE 1:20

Ref.	Revisions	By	Date

1Ranulf Road
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Site Investigation and Details

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Scale at A1	Date	Drawn By	
1:100	21/10/14	AK	

Project No.	Drg No.	Rev.
8776	TH01	-